WHAT IS CLAIMED IS:

1   1.   A method comprising:
2   accepting user input specifying a geometrical arrangement of
3   two or more buttons on one or more displayed pages;
4   accepting user input labeling at least two of the two or more
5   buttons on the one or more displayed pages;
6   accepting user input defining at least one interaction between
7   the labeled at least two buttons;
8   accepting user input specifying at least one constraint cost
9   for the defined at least one interaction; and
10   assigning the labels of the at least two buttons among the two
11   or more buttons on one or more displayed pages such that
12   the at least one constraint cost is substantially
13   optimized.

1   2.   The method of Claim 1, wherein said accepting user input
2   specifying a geometrical arrangement of two or more buttons on one or
3   more displayed pages further comprises:
4   accepting user input specifying one or more sizes of the one or
5   more displayed pages.

1   3.   The method of Claim 1, wherein said accepting user input
2   specifying a geometrical arrangement of two or more buttons on one or
3   more displayed pages further comprises:
4   accepting user input specifying two or more locations of the
5   two or more buttons on the one or more displayed pages.

1   4.   The method of Claim 1, wherein said accepting user input
2   labeling at least two of the two or more buttons on the one or more
3   displayed pages further comprises:
4   accepting user input labeling at least two buttons on a first
5   displayed page presented to a user.

1   5.   The method of Claim 1, wherein said accepting user input
2   labeling at least two of the two or more buttons on the one or more
3   displayed pages further comprises:
4   accepting user input labeling at least one button on a first
5   displayed page presented to a user; and

6   accepting user input labeling at least one button on a second
7   displayed page presented to the user.

1   6.   The method of Claim 1, wherein said accepting user input
2   defining at least one interaction between the labeled at least two
3   buttons further comprises:
4   accepting user input identifying at least one relationship
5   between the labeled at least two buttons, said
6   relationship selected from a relationship group including
7   a Fitts'-movement interaction, a Euclidean-distance
8   interaction, a City-Block-distance interaction, an X-
9   directed interaction, and a Y-directed interaction.

1   7.   The method of Claim 1, wherein said accepting user input
2   specifying at least one constraint cost for the defined at least one
3   interaction further comprises:
4   accepting user input specifying at least one constraint cost
5   for the defined at least one interaction, said at least
6   one constraint cost selected from a constraint-cost group
7   including a global-difficulty cost, a pages-to-close-
8   buttons cost, a pages-to-fixed buttons cost, a path-
9   difficulty cost, a pages-to-far buttons cost, and a
10   parent-to-child variability cost.

1   8.   The method of Claim 1, wherein said accepting user input
2   specifying at least one constraint cost for the defined at least one
3   interaction further comprises:
4   accepting user input specifying at least one weighting factor
5   to be associated with the specified at least one
6   constraint cost.

1   9.   The method of Claim 1, wherein said assigning the labels
2   of the labeled at least two buttons among the two or more buttons on
3   one or more displayed pages such that the at least one constraint
4   cost is substantially optimized further comprises:
5   assigning at least one label of the labeled at least two
6   buttons among the two or more buttons on the one or more
7   displayed pages on the basis of an optimization procedure
8   selected from an optimization-procedure group including

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9   a gradient descent substantial optimization procedure and

10   a simulated annealing substantial optimization procedure.

1   10.   A system comprising:

2   circuitry for accepting user input specifying a geometrical

3   arrangement of two or more buttons on one or more

4   displayed pages, said circuitry selected from an

5   electrical-circuitry group including electrical circuitry

6   having at least one discrete electrical circuit,

7   electrical circuitry having at least one integrated

8   circuit, electrical circuitry having at least one

9   application specific integrated circuit, electrical

10   circuitry forming a general purpose computing device

11   configured by a computer program, electrical circuitry

12   forming a memory device, and electrical circuitry forming

13   a communications device;

14   circuitry for accepting user input labeling at least two of the

15   two or more buttons on the one or more displayed pages,

16   said circuitry selected from an electrical-circuitry

17   group including electrical circuitry having at least one

18   discrete electrical circuit, electrical circuitry having

19   at least one integrated circuit, electrical circuitry

20   having at least one application specific integrated

21   circuit, electrical circuitry forming a general purpose

22   computing device configured by a computer program,

23   electrical circuitry forming a memory device, and

24   electrical circuitry forming a communications device;

25   circuitry for accepting user input defining at least one

26   interaction between the labeled at least two buttons,

27   said circuitry selected from an electrical-circuitry

28   group including electrical circuitry having at least one

29   discrete electrical circuit, electrical circuitry having

30   at least one integrated circuit, electrical circuitry

31   having at least one application specific integrated

32   circuit, electrical circuitry forming a general purpose

33   computing device configured by a computer program,

34   electrical circuitry forming a memory device, and

35   electrical circuitry forming a communications device;

36   circuitry for accepting user input specifying at least one

37   constraint cost for the defined at least one interaction,

38   said circuitry selected from an electrical-circuitry

39   group including electrical circuitry having at least one

40   discrete electrical circuit, electrical circuitry having

41   at least one integrated circuit, electrical circuitry

42   having at least one application specific integrated

43   circuit, electrical circuitry forming a general purpose

44   computing device configured by a computer program,

45   electrical circuitry forming a memory device, and

46   electrical circuitry forming a communications device; and

47   circuitry for assigning the labels of the at least two buttons

48   among the two or more buttons on one or more displayed

49   pages such that the at least one constraint cost is

50   substantially optimized, said circuitry selected from an

51   electrical-circuitry group including electrical circuitry

52   having at least one discrete electrical circuit,

53   electrical circuitry having at least one integrated

54   circuit, electrical circuitry having at least one

55   application specific integrated circuit, electrical

56   circuitry forming a general purpose computing device

57   configured by a computer program, electrical circuitry

58   forming a memory device, and electrical circuitry forming

59   a communications device.

1   11. The system of Claim 10, wherein said circuitry for

2 accepting user input specifying a geometrical arrangement of two or

3 more buttons on one or more displayed pages further comprises:

4   circuitry for accepting user input specifying one or more sizes

5   of the one or more displayed pages.

1   12. The system of Claim 10, wherein said circuitry for

2 accepting user input specifying a geometrical arrangement of two or

3 more buttons on one or more displayed pages further comprises:

4   circuitry for accepting user input specifying two or more

5   locations of the two or more buttons on the one or more

6   displayed pages.

1   13.   The system of Claim 10, wherein said circuitry for
2 accepting user input labeling at least two of the two or more buttons
3 on the one or more displayed pages further comprises:
4   circuitry for accepting user input labeling at least two
5   buttons on a first displayed page presented to a user.

1   14.   The system of Claim 10, wherein said circuitry for
2 accepting user input labeling at least two of the two or more buttons
3 on the one or more displayed pages further comprises:
4   circuitry for accepting user input labeling at least one button
5   on a first displayed page presented to a user; and
6   circuitry for accepting user input labeling at least one button
7   on a second displayed page presented to the user.

1   15.   The system of Claim 10, wherein said circuitry for
2 accepting user input defining at least one interaction between the
3 labeled at least two buttons further comprises:
4   circuitry for accepting user input identifying at least one
5   relationship between the labeled at least two buttons,
6   said relationship selected from a relationship group
7   including a Fitts'-movement interaction, a Euclidean-
8   distance interaction, a City-Block-distance interaction,
9   an X-directed interaction, and a Y-directed interaction.

1   16.   The system of Claim 10, wherein said circuitry for
2 accepting user input specifying at least one constraint cost for the
3 defined at least one interaction further comprises:
4   circuitry for accepting user input specifying at least one
5   constraint cost for the defined at least one interaction,
6   said at least one constraint cost selected from a
7   constraint-cost group including a global-difficulty
8   cost, a pages-to-close-buttons cost, a pages-to-fixed
9   buttons cost, a path-difficulty cost, a pages-to-far
10   buttons cost, and a parent-to-child variability cost.

1   17.   The system of Claim 10, wherein said circuitry for
2 accepting user input specifying at least one constraint cost for the
3 defined at least one interaction further comprises:
4   circuitry for accepting user input specifying at least one
5   weighting factor to be associated with the specified at
6   least one constraint cost.

1   18.   The system of Claim 10, wherein said circuitry for
2 assigning the labels of the labeled at least two buttons among the
3 two or more buttons on one or more displayed pages such that the at
4 least one constraint cost is substantially optimized further
5 comprises:
6   circuitry for assigning at least one label of the labeled at
7   least two buttons among the two or more buttons on the
8   one or more displayed pages on the basis of an
9   optimization procedure selected from an optimization-
10   procedure group including a gradient descent substantial
11   optimization procedure and a simulated annealing
12   substantial optimization procedure.

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1   19.   A system comprising:

2   means for accepting user input specifying a geometrical

3 arrangement of two or more buttons on one or more displayed pages;

4   means for accepting user input labeling at least two of

5 the two or more buttons on the one or more displayed pages;

6   means for accepting user input defining at least one

7 interaction between the labeled at least two buttons;

8   means for accepting user input specifying at least one

9 constraint cost for the defined at least one interaction; and

10   means for assigning the labels of the at least two

11 buttons among the two or more buttons on one or more displayed pages

12 such that the at least one constraint cost is substantially

13 optimized.

1   20.   The system of Claim 19, wherein said means for accepting

2 user input specifying a geometrical arrangement of two or more

3 buttons on one or more displayed pages further comprises:

4   means for accepting user input specifying one or more

5 sizes of the one or more displayed pages.

1   21.   The system of Claim 19, wherein said means for accepting

2 user input specifying a geometrical arrangement of two or more

3 buttons on one or more displayed pages further comprises:

4   means for accepting user input specifying two or more

5 locations of the two or more buttons on the one or more displayed

6 pages.

1   22.   The system of Claim 19, wherein said means for accepting

2 user input labeling at least two of the two or more buttons on the

3 one or more displayed pages further comprises:

4   means for accepting user input labeling at least two

5 buttons on a first displayed page presented to a user.

1   23.   The system of Claim 19, wherein said means for accepting
2   user input labeling at least two of the two or more buttons on the
3   one or more displayed pages further comprises:

4   means for accepting user input labeling at least one
5   button on a first displayed page presented to a user; and

6   means for accepting user input labeling at least one
7   button on a second displayed page presented to the user.

1   24.   The system of Claim 19, wherein said means for accepting
2   user input defining at least one interaction between the labeled at
3   least two buttons further comprises:

4   means for accepting user input identifying at least one
5   relationship   between   the   labeled   at   least   two   buttons,   said
6   relationship   selected   from   a   relationship   group   including   a
7   Fitts'-movement   interaction,   a   Euclidean-distance   interaction,   a
8   City-Block-distance   interaction,   an   X-directed   interaction,   and   a
9   Y-directed interaction.

1   25.   The system of Claim 19, wherein said means for accepting
2   user input specifying at least one constraint cost for the defined at
3   least one interaction further comprises:

4   means for accepting user input specifying at least one
5   constraint   cost   for   the   defined   at   least   one   interaction,   said   at
6   least   one   constraint   cost   selected   from   a   constraint-cost   group
7   including   a global-difficulty cost, a pages-to-close-buttons cost, a
8   pages-to-fixed buttons cost, a path-difficulty cost, a pages-to-far
9   buttons cost, and a parent-to-child variability cost.

1   26.   The system of Claim 19, wherein said means for accepting
2 user input specifying at least one constraint cost for the defined at
3 least one interaction further comprises:

4   means for accepting user input specifying at least one
5 weighting factor to be associated with the specified at least one
6 constraint cost.

1   27.   The system of Claim 19, wherein said means for assigning
2 the labels of the labeled at least two buttons among the two or more
3 buttons on one or more displayed pages such that the at least one
4 constraint cost is substantially optimized further comprises:

5   means for assigning at least one label of the labeled at
6 least two buttons among the two or more buttons on the one or more
7 displayed pages on the basis of an optimization procedure selected
8 from an optimization-procedure group including a gradient descent
9 substantial optimization procedure and a simulated annealing
10 substantial optimization procedure.
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